



## City of Chandler 2003 Annual Drinking Water Quality Report



**Chandler • Arizona**  
*Where Values Make The Difference*





The Chandler Municipal Utilities Department is committed to providing a safe supply of water to our customers. As a result of our strong commitment, Chandler residents receive tap water for which more tests are performed than the minimum amount required by law. We are proud to report that Chandler's water meets or exceeds all health and safety standards set by the county, the state, and the federal government. The United States Environmental Protection Agency (EPA), the Arizona Department of Environmental Quality (ADEQ), and the Maricopa County Environmental Services Department (MCESD) require the City of Chandler to prepare an annual report about the quality of the water we supply to you, our customers. This brochure provides valuable information about your drinking water, including information about its source and quality. Tables contained in this brochure summarize the most recent analytical tests conducted in 2001, 2002, or 2003 on Chandler's drinking water supply.

## WHERE DOES OUR WATER COME FROM?

The City of Chandler receives its water from three sources: Chandler's surface water treatment plant, ground water, and Central Arizona Project (CAP) exchange water from Mesa.

- The surface water treatment plant treats and disinfects water from the Salt River, Verde River, the CAP (Colorado River), and Salt River Project (SRP) wells that is transported to Chandler through the Consolidated Canal.
- 21 wells supply ground water from aquifers underlying Chandler. Ground water is disinfected with chlorine prior to being introduced into the City's distribution system.
- Chandler also receives water from the City of Mesa as part of an agreement to treat and distribute Colorado River water from the Central Arizona Project.

## CITY OF CHANDLER WATER SUPPLY NUMBERS

- Approximately 19.0 billion gallons of drinking water was supplied to Chandler water users in 2003. (An average of 52.0 million gallons each day!)
- Last year Chandler's Water Treatment Plant produced 9.4 billion gallons, that's 49.5% of the City's total drinking water.
- 44% of the City's total drinking water was provided by ground water wells.
- The remaining 6.5% of the City's drinking water was provided by the City of Mesa.



## IMPORTANT INFORMATION FOR PEOPLE AT RISK OF INFECTIONS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. United States Environmental Protection Agency and Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

## WATER QUALITY

The sources of drinking water include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water moves over the surface of the land or through the ground, it dissolves naturally occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include the following:

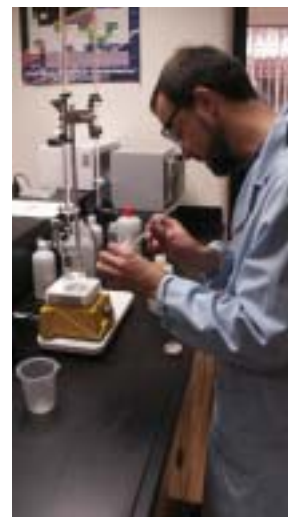
- 1) Microbial contaminants, such as viruses and bacteria, that may be from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;
- 2) Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;
- 3) Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses;
- 4) Organic chemical contaminants, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems;
- 5) Radioactive contaminants, that can be naturally occurring or the result of oil and gas production and mining activities.

## HOW DO I KNOW THE DRINKING WATER SUPPLY IS SAFE?

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The US Food and Drug Administration regulations establish limits for contaminants in bottled water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants in tap water and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791). Information on bottled water can be obtained from the United States Food and Drug Administration.

Contaminants of concern for drinking water are subject to regulatory requirements for analysis on three-year cycles. In 2003, the City of Chandler sampled all of our water sources for all applicable contaminants.



### *Cryptosporidium and Giardia*

The City of Chandler routinely samples our water for the presence of the protozoans *Cryptosporidium* and *Giardia*. Though rare, *Cryptosporidium* and/or *Giardia* have been identified in the source water we receive from the Consolidated Canal, but they have never been detected in 'finished' water provided to the citizens of Chandler. The filtration system in the City's surface water treatment plant exceeds the EPA requirements for the removal of *Cryptosporidium* and *Giardia*.

### *Nitrate*

In 2003, the highest nitrate level measured in the City of Chandler's water was 9.2 parts per million (ppm), and our average was 3.3 ppm, well below the USEPA limit of 10-ppm. Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

### *Radon*

Radon is a naturally occurring radioactive gas formed by the natural decay of uranium and radium in the earth. In November 1999, the EPA proposed regulations limiting the amount of radon in drinking water. At the time of this writing, the final Radon level has yet to be announced, but the proposed maximum contaminant level for Radon in Arizona is 4000 picocuries per liter (pCi/L). The City of Chandler tested all of its water sources for Radon in 1999 and 2000. The average Radon concentration is less than 300 pCi/L for all water sources and the average for any individual well does not exceed 1500 pCi/L.

### *MTBE*

To improve air quality in the Phoenix Metropolitan area, an oxygenating compound, Methyl Tertiary Butyl Ether (MTBE), is added to gasoline to reduce automobile exhaust emissions. MTBE contamination has occurred in water supplies nationally. The City of Chandler routinely tests all of its water sources for MTBE and is pleased to announce that no MTBE has been detected.

### *Arsenic*

In 2001, the EPA finalized new regulations for arsenic in drinking water. These new regulations will take effect in January of 2006 and will lower the maximum contaminant level for arsenic from 50 parts per billion (ppb) to 10 ppb. The City is in full compliance with the existing standard and has already achieved compliance with the new standard at our surface water treatment plant and many of our water supply wells. The City is conducting studies to determine the most effective and feasible process to be used to ensure all water production wells will meet the 2006 standard. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

**Action Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system shall follow.

## UNDERSTANDING WATER MEASUREMENTS

**Parts per million (ppm)** – Parts per million and parts per billion are units of concentration of an element or compound dissolved in water. One ppm is equivalent to one gallon in one million gallons.

**Parts per billion (ppb)** – One ppb is equivalent to one gallon in one billion gallons. A ppb is one thousand times smaller than a ppm.

## PROTECTING CHANDLER'S WATER SUPPLY

### *Lead and Copper Testing*

Lead and copper in drinking water is derived from either naturally occurring deposits or from the corrosion of household plumbing systems. Federal regulations require all cities to test for lead and copper at selected customer's taps at least once every three years. In the summer of 2001, we conducted one round of lead and copper tap sampling. The next round of lead and copper sampling will be in June -September 2004. The concentrations of both lead and copper in the City's drinking water are well below the regulatory levels.

### *Backflow Prevention*

The City of Chandler has a backflow prevention program that ensures the proper installation and maintenance of thousands of backflow prevention devices throughout the City. These devices ensure that untreated water is not able to enter the City's drinking water distribution system. Backflow prevention devices range from the vacuum-breakers on household hose bibs, up to the large commercial reduced-pressure units found throughout the City.

### *Source Water Protection*

Based on new Federal safe drinking water laws, Arizona Department of Environmental Quality (ADEQ) evaluated each water source used by public water systems in Arizona. At the time of this writing, the City of Chandler has not yet received a final draft of its assessment from ADEQ. This program is designed to benefit water suppliers and the public by preventing future drinking water source contamination rather than facing costly treatment technology to clean up water after contamination occurs. The steps in the source water assessment program are to identify the location of all public drinking water sources; to inventory land uses within a specified boundary around each water source; and to evaluate the susceptibility of each water source to potential contamination. This information will help local governments, water suppliers, and the public decide on appropriate land uses and best management practices to protect drinking water sources.

## THINGS YOU CAN DO TO PROTECT OUR WATER SUPPLY

Storm water runoff from polluted areas can find its way into rivers and underground water supplies. When a drinking water supply becomes polluted, it is no longer suitable unless we clean it up. All citizens must work together to prevent pollution. This collective effort saves money, preserves water resources, and helps ensure safe drinking water.

### *Guidelines for everyday pollution prevention:*

- Use fertilizers and pesticides sparingly and support other practices that protect your watershed.
- Pick up after your pet and don't use the washes, canals, or riverbeds to dispose of any waste.
- Minimize your purchase and use of hazardous products. Dispose of unused quantities properly.
- Take used motor oil and other such fluids to the City's biannual Household Hazardous Waste Collection events.
- Let your government representatives know that protective laws and adequate funding for research, inspection, and enforcement are important to you.

## DEFINITIONS

**Maximum Contaminant Level Goal or MCLG:** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**Maximum Contaminant Level or MCL:** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**Maximum Residual Disinfectant Level or MRDL:** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal or MRDLG:** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Treatment Technique:** A required process to reduce the level of a contaminant in drinking water.



## SEASONAL CHANGES IN FLAVOR

Depending on the original source of the water, the flavor of Chandler's water can change at certain times of the year. For example, late summer algae growing in canals can give the water a slightly musty flavor. At other times you may detect a change in the taste of your water is when Chandler switches to well water as its primary source. This happens, for instance, when SRP dries up canals for routine maintenance.

Chandler works with SRP to eliminate algae and treats the surface water to reduce off-flavors and odors. The flavor of Chandler's water is monitored by a

"Flavor Panel" who meet weekly to taste water from a variety of sources. The panel is trained to recognize flavors and odor and recommend treatment applications to enhance the quality of your water.

## WHO DO I CONTACT WITH QUESTIONS ABOUT CHANDLER'S DRINKING WATER?

If you have any questions about your tap water, or the information in this report, please call (480) 782-3660 during normal business hours (8:00 am to 5:00 p.m., Monday through Friday, except holidays). Or visit our website at <http://www.chandleraz.gov>.

### Detected Regulated Contaminants 2003

Contaminant (units)	MCL	MCLG	High	Range	Likely Source
Arsenic (mg/L)	0.05	N/A	0.020	0.001 – 0.020	Naturally occurring
Barium (mg/L)	2	2	0.14	<0.01 – 0.14	Naturally occurring
Chromium (mg/L)	0.1	0.1	0.032	<0.005 – 0.032	Naturally occurring
Fluoride (mg/L)	4	4	1.5	<0.1 – 1.5	Naturally occurring
Nitrate (mg/L)	10	10	9.2	0.33 – 9.2	Naturally occurring
Selenium (mg/L)	0.05	0.05	0.003	<0.002 – 0.003	Naturally occurring
Di(2-ethylhexyl) phthalate (mg/L)	0.006	0.0	0.0017	<0.0006- 0.0017	Plastic pipes
Bromodichloromethane (mg/L)	N/A	0.0	0.0260	<0.0005-0.0260	By-product of drinking water chlorination
Bromoform (mg/L)	N/A	0.0	0.021	<0.0005-0.021	By-product of drinking water chlorination
Chlorodibromomethane (mg/L)	N/A	0.06	0.045	<0.0005-0.045	By-product of drinking water chlorination
Chloroform (mg/L)	N/A	N/A	0.0110	<0.0005-0.0110	By-product of drinking water chlorination
Alpha Emitters (pCi/L)	15	0	13.9	1.3- 13.9	Erosion of natural deposits
Combined Radium (pCi/L)	5	0	0.5	0.2 – 0.5	Erosion of natural deposits
Uranium (ug/L)	30	0	11.5	<1.3 – 11.5	Erosion of natural deposits

### Distribution System Detections 2003

Contaminant	Maximum Contaminant Level	MCLG	Results	Sources in Drinking water
Total Coliform Bacteria	No more than 5% of the monthly samples may be total coliform positive	0.0 %	1.2 %	Naturally present in the environment
Chlorine Residual	Maximum 4.0 mg/L (MRDL) Minimum 0.2 mg/L	N/A	3.4 mg/L 0.4 mg/L	Water additive used to control microbes
Turbidity	Highest Single Measurement (1.0 NTU) Lowest monthly % (95) meeting limits for Treatment Technique (0.3 NTU)	N/A	0.14 NTU 100 % were below 0.3 NTU	Soil run off
Copper (2001)	Action level = 1.3 mg/L 90th percentile Number of sites exceeding action level	1.3 mg/L	0.210 mg/L zero	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (2001)	Action level = 0.015 mg/L 90th percentile Number of sites exceeding action level	0 mg/L	<0.0020 mg/L zero	Corrosion of household plumbing systems; Erosion of natural deposits
Total Trihalomethanes	Running Annual Average of 0.08 mg/L Range	0 mg/L	0.04 mg/L <0.0005 - 0.110	By-product of drinking water disinfection
Haloacetic Acids	Running Annual Average of 0.06 mg/L Range	0 mg/L	0.0147 mg/L <0.0005 – 0.110	By-product of drinking water disinfection

### Explanation of units and abbreviations used in tables:

mg/L milligrams per liter - a measure of the concentration of a substance, equivalent to parts per million  
 ug/L micrograms per liter - a measure of the concentration of a substance, equivalent to parts per billion  
 pCi/L picocuries per liter - a measure of the radioactivity of a substances  
 NTU Nephelometric Turbidity Unit - a standard measure of turbidity.

Turbidity is a measure of the cloudiness of the water. We test it because it is a good indicator of the effectiveness of our filtration system.  
 N/A Non-applicable - EPA has not set MCLs or MCLGs for these substances  
 MCLG The level of a contaminant in drinking water below which there is no known or expected risk to health.  
 MCL The highest level of a contaminant that is allowed in drinking water.